What is claimed are:

1. An airgap type etalon comprising:

a fixing member having at least one flat surface;

a first parallel member, which is transparent to incident light and has parallel flat surfaces, one of said parallel flat surfaces thereof being joined to said flat surface of said fixing member;

at least one second parallel member, which has parallel flat surfaces in which a distance between said parallel flat surfaces thereof is greater than a distance between said parallel flat surfaces of said first parallel member, and has an expansion coefficient different from that of said first parallel member, one of the flat surfaces of said second parallel member being joined to said flat surface of said fixing member so as to surround the outer periphery of said first parallel member; and

a transparent member, which is transparent to incident light into and has opposite flat surfaces, one of said flat surfaces thereof being joined to the other flat surface of said second parallel member, said other flat surface being opposite to the joined surface to said fixing member;

wherein a Fabry-Perot interferometer is formed based on an airgap positioned between the flat surface of said first parallel member and the flat surface of said transparent member facing each other.

2. An airgap type etalon of claim 1, wherein

said fixing member has a through-hole for passing light therethrough,

said first parallel member is formed with an antireflection coating on one flat surface thereof, and this flat surface formed with said antireflection coating is joined to said flat surface of said fixing member around said through-hole, and

said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel member.

3. An airgap type etalon of claim 1, wherein

said fixing member is transparent to incident light, and is formed with an antireflection coating on a surface opposite to said flat surface thereof, and

said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel

member.

4. An airgap type etalon of claim 1, wherein reflection augmenting coatings are formed on said flat surfaces of said first parallel member and said transparent member facing each other, respectively.

5. An airgap type etalon of claim 1, wherein the distance between said parallel flat surfaces of said first parallel member, the expansion coefficient of said first parallel member, the distance between said parallel flat surfaces of said second parallel member, and the expansion coefficient of said second parallel member are set so that the temperature dependency of the optical distance of said airgap becomes a predetermined value to thereby set the temperature characteristic of the transmission wavelength characteristic of said Fabry-Perot interferometer to be a predetermined value.

6. An airgap type etalon of claim 5, wherein temperature dependency of said transmission wavelength characteristic is set to be 1pm/℃ or less.

7. An airgap type etalon of claim 5, wherein temperature dependency of said transmission wavelength characteristic is set to be 25pm/℃ or more.

8. A wavelength detecting apparatus comprising:

a first branching portion and a second branching portion for extracting branched light from a main light path, respectively;

an optical filter for transmitting the branched light from said first branching portion and for giving a wavelength characteristic to the thus transmitted light;

a first light receiving portion for converting the transmitted light from said optical filter into an electrical signal; and

a second light receiving portion for converting the branched light from said second branching portion into an electrical signal;

wherein said optical filter is constituted by employing said airgap type etalon of claim 6.

9. A wavelength locker employing said wavelength detecting apparatus of claim 8, said wavelength locker comprising:

a semiconductor laser diode the wavelength of which varies proportionally

to temperatures;

an introducing portion for introducing monochromatic light from said semiconductor laser diode into said main light path; and

a controlling portion for feedback controlling the temperature of said semiconductor laser diode so that the mathematical division result between said electrical signal from said first light receiving portion and said electrical signal from said second light receiving portion becomes constant, to thereby fix the wavelength of the monochromatic light at a specific wavelength.

10. A gain-equalizer, comprising:

a plurality of optical filters having periodical transmission wavelength characteristics shifted from one another by an approximately 1/2 cycle at a predetermined temperature, in which the respective transmission wavelength characteristics have mutually different temperature dependencies, such that a synthesized transmission wavelength characteristic to be obtained by synthesizing the transmission wavelength characteristics of said plurality of optical filters is passively varied corresponding to a temperature change;

wherein at least one of said plurality of optical filters is constituted by employing said airgap type etalon of claim 7.

11. An optical amplifier employing said gain-equalizer of claim 10,

wherein said gain-equalizer has a transmission wavelength characteristic reverse to a gain wavelength characteristic of said optical amplifier, so that the gain wavelength characteristic of said optical amplifier is flattened irrespectively of a temperature change.

12. A wavelength characteristic varying apparatus comprising:

a plurality of optical filters having periodical transmission wavelength characteristics, in which the transmission wavelength characteristics have mutually different temperature dependencies; and temperature controlling means for controlling the temperature of said plurality of optical filters such that an inclination amount of a transmission wavelength characteristic obtained by synthesizing the transmission wavelength characteristics of said plurality of optical filters can be positively varied by a temperature control by said temperature controlling means;

wherein said plurality of optical filters are constituted by employing at least two airgap type etalons of claim 7, and the shift directions of temperature

dependencies of transmission wavelength characteristics of said airgap type etalons are opposite to each other.

13. An optical amplifier employing said wavelength characteristic varying apparatus of claim 12, in which a gain wavelength characteristic of said optical amplifier changes corresponding to an operating condition,

wherein said wavelength characteristic varying apparatus has a transmission wavelength characteristic reverse to a change of the gain wavelength characteristic of said optical amplifier corresponding to the operating condition, so that the gain wavelength characteristic of said optical amplifier is flattened irrespectively of the operating condition.

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